

9/28/00
#26/Reply
Brief

BEFORE THE UNITED STATES PATENT AND TRADEMARK OFFICE
BOARD OF PATENT APPEALS AND INTERFERENCES

In re Application of:
Chesser, et al.

Serial No. 08/869,109

Filed: March 18, 1997

For: "Controlled Hydration of Starch
In High Density Brine Dispersion"

§ Group Art Unit 1756
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§ Examiner: C. H. Kelley
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§ Attorney Docket:
§ 154-9245-CPA
§

REPLY BRIEF

Commissioner of Patents and Trademarks
Washington, D.C. 20231

Sir:

The following is Appellants' Reply to the Examiner's Answer mailed August 11,
2000.

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Summary of Argument

The examiner has not established a case of *prima facie* obviousness because:

1. The examiner **has not established an overlap in polymer concentration ranges** between (a) the brines in GB 2 084 586 A and (b) the precursor polymer dispersions of the claims [MPEP 2144.05(I)];
2. The examiner **has not established** that persons of ordinary skill in the art recognized polymer concentration in a "precursor polymer dispersion" **to be a "result effective variable"** [MPEP 2144.05(B)];
3. The examiner has not pointed to a teaching or suggestion in the GB patent or elsewhere that would **motivate** a person of ordinary skill in the art to **increase the concentration of polymer in the brine** to form the claimed precursor polymer dispersions; and,

4. The GB patent actually **teaches away** from both (a) using a brine as the initial contact solution for water-soluble polymers, and (b) using a high concentration of polymer in the brine. This is "strong evidence of unobviousness." *In re Hedges*, 228 U.S.P.Q. 685, 687 (Fed. Cir. 1986), quoting *W. L. Gore & Assoc. v. Garlock, Inc.*, 220 U.S.P.Q.303, 312 (Fed. Cir. 1983), *cert. denied*, 469 U.S. 851 (1984).

ARGUMENT

1. No Showing of an Overlap in the Range of Polymer Concentration

The claims in Groups I, IV, and VI all specify particular ranges of polymer concentration. The examiner has not established an overlap in the "ranges" of polymer concentration in the GB patent vs. the claims.

The broadest range of polymer concentration specified in the claims of Groups I, IV, and VI is from about **0.5 to about 4 pounds per gallon** of precursor brine. The cited portions of the GB patent result in **0.046 pounds/gal of polymer (Example 2) and 0.048 lb/gal (Example 3)**. See EXHIBIT 1 for calculations. The quantity of polymer required in the claims of Groups I, IV, and VI is at least a magnitude greater than the quantity taught in the cited portions of the GB patent. Certain of the claims even specify a higher polymer concentration (from about 1 to about 2 pounds/gallon).

The examiner has not established that the range of polymer concentrations in the GB patent and in the claimed invention are "close enough that one skilled in the art would have expected them to have the same properties." MPEP 2144.05 (I).

The examiner has not established either (a) an overlap in polymer concentration ranges, or even, (b) that the polymer concentration ranges, are "close enough that one skilled in the art would have expected them to have the same properties" [MPEP 2144.05 (I)]. The examiner nevertheless concludes that the claimed polymer concentration in the

precursor brine is *prima facie* obvious because “[i]t is obvious to optimize the amounts of the components of a composition.” Examiner’s Answer, p. 4.

The examiner is not allowed to establish *prima facie* obviousness on these grounds unless the examiner has established that persons of ordinary skill in the art recognized that the concentration of polymer in a “precursor polymer dispersion” was a “result effective variable.” The examiner has not made the required showing.

2. No Showing that Persons of Ordinary Skill in the Art Recognized Polymer Concentration to be a “Result Effective Variable”

“A particular parameter must first be recognized as a **result-effective variable**, i.e., a variable which achieves a recognized result, before the determination of the optimum or workable ranges of said variable might be characterized as routine experimentation.” [Citations omitted]. MPEP 2144.05.B. **The claimed invention is directed to the discovery that that the concentration of polymer in a “precursor polymer dispersion” is a “result effective variable.”**

The examiner has not pointed to any teaching or suggestion, in the GB patent or elsewhere, that the concentration of polymer in a “precursor polymer dispersion” is a “result effective variable.” Since the examiner did not make the required showing, the examiner cannot establish *prima facie* obviousness merely by arguing that “[i]t is obvious to optimize the concentration of components in a composition.” Examiner’s Answer, p.

7.

3. The GB Patent Teaches Away from the Claimed Invention

The cited portions of the GB patent use the initial brine/polymer solutions as controls to which the solutions of the “GB invention” are compared. The GB patent

reports poorer results using the controls (brine solutions) than using the water solutions of the “GB invention.”

In Example 2, “[c]ontrol thickened aqueous brine solutions” are prepared by “adding 2 g of each of the dry polymers employed in Example 1 to a pre-made 1.82 g/ml brine.” The “control thickened” brine solutions are compared to the solutions of the “invention” from Example 1 of the GB patent, in which the polymer is initially contacted with water and dry salts added later. Data on rheology and filtration control properties of the resulting samples are given in Tables 1 and 2.

Example 2 of the GB patent teaches that:

These data compared to those in Tables 1 and 2 demonstrate that the **brines prepared by the method of the invention (Example 1)** wherein the polymer is first hydrated and the dry salts added thereto exhibit superior viscosity and **give lower filtrates in every case** before hot rolling and in substantially all cases after hot rolling.

Page 3, ll. 42-45 (emphasis added). Example 3 of the GB patent similarly teaches that:

It is obvious from these data that the apparent viscosities of the brines prepared by the method of the invention have values twice as large or more than the controls. **The superior filtration properties of the samples prepared by the method of the invention are readily evident as well from a comparison of these data.**

Page 4, ll. 30-33 (emphasis added).

In light of the poorer results achieved using the “control thickened aqueous brine solutions,” the GB patent teaches away from using a brine as the initial contact solution for water-soluble polymers. Because the brines taught in the GB patent contain at least a magnitude less polymer than claimed, particularly in the claims of Groups I, IV, and VI, the GB patent also arguably teaches away from using a high concentration of polymer in the brine. These factors are “strong evidence of unobviousness” of the claims. *In re*

Hedges, 228 U.S.P.Q. 685, 687 (Fed. Cir. 1986), quoting *W. L. Gore & Assoc. v.*

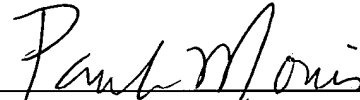
Garlock, Inc., 220 U.S.P.Q.303, 312 (Fed. Cir. 1983), *cert. denied*, 469 U.S. 851 (1984).

Rather than motivating a person of ordinary skill in the art to increase the amount of polymer in a precursor brine, the GB patent would motivate a person of ordinary skill in the art to substitute water for a brine to form a "precursor polymer dispersion."

CONCLUSION

For the foregoing reasons, the rejection at least should be reversed with respect to the claims in Groups I, IV, and VI.

Respectfully submitted,

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CERTIFICATE OF MAILING

I hereby certify that this paper, along with any referred to as being attached or enclosed, is being forwarded to the Commissioner of Patents and Trademarks, Washington, D.C. 20231, via First Class Mail this the 21 day of September, 2000.



EXHIBIT 1

The polymer concentration of the fluids in Example 2 (GB 2084586) was calculated as follows, assuming that only 2 grams of one polymer is added (as stated, p. 3, l. 37):

Total weight of ingredients = 214.2 g water + 119.5 g CaCl₂ + 294.0 g CaBr₂ + (16.2 ml x 2.30 g/ml) g CaBr₂/ZnBr₂
Total weight of ingredients = 664.96 grams

We are told that final brine density is 1.82 g/ml. To calculate final volume which is needed to determine polymer concentration,

Density = Mass/Volume

Volume = Mass/Density

Or Volume = 664.9 grams/1.82 g/ml = 365 ml

Polymer Conc. = (2 grams/365 ml) x (3785.4ml/gal) x (1lb/453.6 grams)

Polymer Conc. = 0.046 lb/gal

In Example 3, a premix is prepared with Hi Vis Cellex. The quantity of Hi Vis Cellex used was 5 grams in 299.6 grams water plus 197.7 grams CaCl₂. The final volume of this mixture should be approximately 350 ml. The premix is used to make a finished brine as follows:

140 ml concentration + 210 ml brine (one of the brines from Table 5) =
total of 350 ml finished volume

The polymer added from the concentrate must be calculated:

140 ml x 5 grams polymer/350 ml = 2 grams polymer

(2 grams polymer/350 ml) x (3785.4ml/gal) x (1lb/453.6 grams) =
0.048 lb/gal polymer